

### **REMARKS**

The Office Action dated March 8, 2006 has been received and carefully noted. The above amendments to the claims and the following remarks are submitted as a full and complete response thereto.

Claim 8 is amended to correct an informality. No new matter is added. Applicant gratefully acknowledges the indication that claims 11-14 would be allowable if rewritten in independent form. However, Applicant respectfully submits that these claims are allowable in their present form at least for the reasons set forth below. Claims 1-16 are respectfully submitted for consideration.

The Office Action objected to claim 8 because of informalities. Applicant respectfully submits that claim 8 is amended to correct the informality cited in the Office Action. Accordingly, withdrawal of the objection to claim 8 is respectfully requested.

The Office Action rejected claims 1-10 under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,789,944 to Choy et al. (Choy). This rejection is respectfully traversed.

Claim 1, from which claims 2-5 depend, recites a circuit element. The circuit element includes two or more logically entangled bi-directional terminals, wherein each bi-directional terminal can assume any one of three logical states, which are (a) a logical true state, (b) a logical false state, and (c) an indefinite state, in which state the bi-directional terminal accepts one of the logical true and logical false states as an external input from an external source. The circuit element further includes an entanglement logic

for resolving the logical state of each of the bi-directional terminals according to a predetermined set of logical entanglement rules between the bi-directional terminals.

Claim 6, from which claims 7-14 depend, recites a network for logical deduction. The network includes two or more circuit elements. Each of the circuit elements includes two or more logically entangled bi-directional terminals. Each bi-directional terminal can assume any one of three logical states, which are, (a) a logical true state, (b) a logical false state, and (c) an indefinite state, in which state the bi-directional terminal accepts one of the logical true and logical false states as an external input from an external source, and an entanglement logic for resolving the logical state of each of the bi-directional terminals according to a predetermined set of logical entanglement rules between the bi-directional terminals. The network further includes a set of additional terminals, each additional terminal accepting a logical true state or logical false state as an input, wherein the inputs to the set of additional terminals collectively determine which of several sets of logical entanglement rules are to be used for said resolving.

The present invention is directed to entanglement. Entanglement is used and defined with lexicographical precision and clarity in the present application, see in particular paragraphs 0005 through 0009. For instance, paragraph 0005 states that “the entanglement, as used herein, means that the allowed logical value of a variable in a set of two or more variables depends on the logical values of the other variables in the set.” Applicant respectfully submits that the cited reference fails to disclose or suggest all of the features recited in the pending claims.

Choy is directed to asynchronous anticontention logic for bi-directional signals. An asynchronous anticontention circuit includes an anticontention circuit coupled to an asynchronous delay circuit. The anticontention circuit receives a driver select signal and generates a first signal and a second signal. The first signal and the second signal each have an active state and an inactive state. When the driver select signal is in a first logic state, the first signal is in the inactive state and the second signal is in the active state. On the other hand, when the driver select signal transitions from the first logic state to a second logic state, the anticontention circuit transitions the second signal from the active state to the inactive state.

Applicant respectfully submits that Choy fails to disclose or suggest at least the feature of a circuit element, as recited in claim 1 and similarly recited in claim 6. Instead, Choy is directed to asynchronous anticontention logic for bi-directional signals.

Further, Applicant respectfully submits that Choy fails to disclose or suggest at least the features of logically entangled bi-directional terminals, or, an entanglement logic for resolving the logical state of each of the bi-directional terminals according to a predetermined set of logical entanglement rules between the bi-directional terminals, as recited in claim 1 and similarly recited in claim 6.

Instead, as discussed above, Choy is directed to an asynchronous anticontention logic for bi-directional signals. Contention (or anticontention) is a different concept and therefore, does not read upon the recited feature of entanglement, as known in the art.

For example as defined in the web-based dictionary Wikipedia, the term contention as known in the art means:

1. A condition that arises when two or more data stations attempt to transmit at the same time over a shared channel, or when two data stations attempt to transmit at the same time in two-way alternate communication. This definition is the most relevant to Choy.

2. A contention can occur in data communications when no station is designated a master station. In contention, each station must monitor the signals and wait for a quiescent condition before initiating a bid for master status.

3. Competition by users of a system for use of the same facility at the same time. The term contention ratio applies specifically to the number of people connected to an ISP who share a set amount of bandwidth.

Thus, as known in the art, contention is a concept related to timing. For example, see Choy at column 4, lines 39-40, and figures 4 and 8. A copy of the above definitions from Wikipedia is attached.

On the other hand, the recited feature of entanglement. As discussed in the specification of the present invention at least in paragraphs [0005] – [0009], “the entanglement, as used herein, means that the allowed logical value of a variable in a set of two or more variables depends on the logical values of the other variables in the set.” Choy is completely silent on any allowed logical value of a variable in a set of two or more variables.

Furthermore, Choy goes on to explain that the anticontention circuitry 26 is not part of the system state machine. That is, asynchronous anticontention circuit 26 is not part of the system state machine or the state machine of device 20. Rather, it receives the driver select signal from driver select control circuitry 24, and then performs the steps necessary to prevent contention on a bidirectional bus 52. Therefore, the system state machine does not have to perform arbitration and the system state machine is not further complicated. Additionally, there is a very low probability that changes in the system state machine will affect the driver select signal. Thus, there is a very low probability that changes in the system state machine will cause the arbitration performed by asynchronous anticontention circuitry 26 to be inadvertently altered.

Applicant submits that Choy's system state machine is the section which processes any rules relating to values of input and output signals. However, such rules are not entanglement rules as recited in the present invention.

Applicant respectfully submits that because claims 2-5, and 7-10 depend from claims 1 and 6 these claims are allowable at least for the same reasons as claims 1 and 6 and for the additional features recited in these dependent claims.

Based at least on the above, Applicant respectfully submits that claims 1-10 recite features that are neither disclosed nor suggested in Choy. Accordingly, withdrawal of the rejection under 35 U.S.C. 102(b) is respectfully requested.

The Office Action rejected claims 15 and 16 under 35 U.S.C. 103(a) as being obvious over Choy, in view of US Patent No. 5,734,581 to Butts et al. (Butts). The

Office Action took the position that Choy disclosed all of the features of these claims except for the feature of a computer program product including program instructions, wherein the program instructions cause a computer to simulate the circuit element. The Office Action asserted that Butts disclosed this feature. Applicant respectfully submits that the cited references, taken individually or in combination, fail to disclose or suggest all of the features recited in any of the above claims. Specifically, Applicant submits that Choy is deficient at least for the reasons discussed above, and Butts fails to cure these deficiencies.

Claim 15 is directed to a computer program product including program instructions, wherein the program instructions cause a computer to simulate the circuit element according to claim 1, when said computer program product is run on said computer.

Claim 16 is directed to a computer program product including program instructions, wherein the program instructions cause a computer to simulate the network according to claim 6, when said computer program product is run on said computer.

Applicant respectfully submits that the cited references fail to disclose or suggest all of the features recited in the above claims.

Choy is discussed above. Butts is directed to implementing tri-state nets in a logic emulation system. Gate array logic chips are interconnected via a reconfigurable interconnect, and electronic representations of large digital networks are converted to take a temporary actual operating hardware form on the interconnected chips. The

reconfigurable interconnect may comprise a partial crossbar that is formed of ERCGA chips dedicated to interconnection functions. However, Butts does not disclose or suggest the features of logically entangled bi-directional terminals, or, an entanglement logic for resolving the logical state of each of the bi-directional terminals according to a predetermined set of logical entanglement rules between the bi-directional terminals. Thus, Butts fails to cure the deficiencies of Choy.

Based at least on the above, Applicant respectfully submits that the cited references fail to disclose or suggest all of the features recited in claims 15 and 16. Accordingly, withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

The Office Action objected to claims 11-14 as being dependent from a rejected base claim, but would be allowable if rewritten into independent form. Applicant respectfully submits that because claims 11-14 depend from claim 6, these claims are allowable in their present form at least for the same reasons as claim 6. Accordingly, withdrawal of the objection to claims 11-14 is respectfully requested.

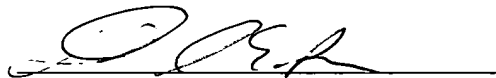
Applicant respectfully submits that each of claims 1-16 recite features that are neither disclosed nor suggested in any of the cited references. Accordingly, Applicant respectfully requests that each of claims 1-16 be allowed and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by

telephone, the applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'David E. Brown', is written over a horizontal line.

David E. Brown  
Registration No. 51,091

**Customer No. 32294**  
SQUIRE, SANDERS & DEMPSEY LLP  
14<sup>TH</sup> Floor  
8000 Towers Crescent Drive  
Tysons Corner, Virginia 22182-2700  
Telephone: 703-720-7800  
Fax: 703-720-7802

DEB:jkm

Attachment: Copy of definition of "Contention" from Wikipedia.



# Contention

From Wikipedia, the free encyclopedia

In telecommunication, the term **contention** has the following meanings:

- A condition that arises when two or more data stations attempt to transmit at the same time over a shared channel, or when two data stations attempt to transmit at the same time in two-way alternate communication.
- A contention can occur in data communications when no station is designated a master station. In contention, each station must monitor the signals and wait for a quiescent condition before initiating a bid for master status.
- Competition by users of a system for use of the same facility at the same time. The term **contention ratio** applies specifically to the number of people connected to an ISP who share a set amount of bandwidth.

A contention Ratio, is the term used in broadband communication, to allocate bandwidth where there is more than one user. This is typically 50:1, for home user (that is to say that 50 people or lines will vie for the same bandwidth) and 20:1 for business users.

Retrieved from "<http://en.wikipedia.org/wiki/Contention>"

Categories: Cleanup from April 2006

**Wiktionary**  
Look up *Contention* in Wiktionary,  
the free dictionary.

- This page was last modified 03:12, 31 May 2006.
- All text is available under the terms of the GNU Free Documentation License (see **Copyrights** for details).  
Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc.